

DAVI172SequenceListing.txt
SEQUENCE LISTING

<110> Dale, James Langham
Echeverria, Santy Peraza

<120> BANANA RESISTANCE GENES AND USES THEREOF

<130> DAVI172.006APC

<140> 10/573,372
<141> 2006-10-31

<150> PCT/AU2004/001300
<151> 2004-09-23

<150> AU 2003/905222
<151> 2003-09-25

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<170> PatentIn version 3.3

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<212> DNA
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1				5					10					15		
cag	acg	ttg	ctc	gac	aag	gcc	agc	aac	tgc	gcg	atc	caa	caa	ctc	gcg	96
Gln	Thr	Leu	Leu	Asp	Lys	Ala	Ser	Asn	Cys	Ala	Ile	Gln	Gln	Leu	Ala	
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cgg	cgc	cgc	ggc	ctt	cac	gat	gac	ctg	agg	cgg	ctg	cgg	acg	tct	ctg	144
Arg	Arg	Arg	Gly	Leu	His	Asp	Asp	Leu	Arg	Arg	Leu	Arg	Thr	Ser	Leu	
			35				40					45				
ctc	cgg	atc	cat	gcc	atc	ctc	gac	aag	gca	gag	acg	agg	tgg	aac	cat	192
Leu	Arg	Ile	His	Ala	Ile	Leu	Asp	Lys	Ala	Glu	Thr	Arg	Trp	Asn	His	
			50			55					60					
aaa	aac	acg	agc	ttg	gtg	gag	ctg	gtg	agg	cag	ctc	aag	gat	gct	gcc	240
Lys	Asn	Thr	Ser	Leu	Val	Glu	Leu	Val	Arg	Gln	Leu	Lys	Asp	Ala	Ala	
65				70					75					80		
tat	gac	gcc	gag	gac	tta	ctg	gag	gag	ttg	gag	tac	caa	gcc	gcg	aag	288
Tyr	Asp	Ala	Glu	Asp	Leu	Leu	Glu	Glu	Leu	Glu	Tyr	Gln	Ala	Ala	Lys	
				85					90					95		
caa	aag	gtc	gag	cac	cgg	gga	gac	cag	ata	agc	gac	ctc	ttt	tct	ttt	336
Gln	Lys	Val	Glu	His	Arg	Gly	Asp	Gln	Ile	Ser	Asp	Leu	Phe	Ser	Phe	
			100					105					110			
tcc	ctt	agt	act	gcg	agc	gag	tgg	ttg	ggc	gcc	gat	ggt	gat	gat	gct	384
Ser	Leu	Ser	Thr	Ala	Ser	Glu	Trp	Leu	Gly	Ala	Asp	Gly	Asp	Asp	Ala	

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	gat atg atg gat gtc atg cag cta ttg gca ccc gat gat ggg ggg aga	480
	Asp Met Met Asp Val Met Gln Leu Leu Ala Pro Asp Asp Gly Gly Arg	
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	caa ttc gac tgg aag gtg gtg aga aga gaa acg agc tct ttc ttg acc	528
	Gln Phe Asp Trp Lys Val Val Arg Arg Glu Thr Ser Ser Phe Leu Thr	
	165 170 175	
	gaa acc gtc gtg ttt ggt cgg gac caa gaa agg gag aaa gta gta gaa	576
	Glu Thr Val Val Phe Gly Arg Asp Glu Arg Glu Lys Val Val Glu	
	180 185 190	
	ttg ctg ttg gat tca gga tct ggt aac agt agc ttc tct gtc tta ccc	624
	Leu Leu Leu Asp Ser Gly Ser Gln Asn Ser Ser Phe Ser Val Leu Pro	
	195 200 205	
	ctc gtc gga atc gga ggg gtt ggg aag acg act ctg gct cag ctc gtg	672
	Leu Val Gly Ile Gly Gly Val Gly Lys Thr Thr Leu Ala Gln Leu Val	
	210 215 220	
	tac aac gac aat cgt gtc ggc aac tat ttc cac ctc aag gtt tgg gtc	720
	Tyr Asn Asp Asn Arg Val Gly Asn Tyr Phe His Leu Lys Val Trp Val	
	225 230 235 240	
	tgt gta tcc gac aat ttc aat gtg aag aga ctg acc aaa gag ata atc	768
	Cys Val Ser Asp Asn Phe Asn Val Lys Arg Leu Thr Lys Glu Ile Ile	
	245 250 255	
	gag tct gct acc aag gtg gaa caa tct gac aaa atg aac ttg gac acc	816
	Glu Ser Ala Thr Lys Val Glu Gln Ser Asp Lys Leu Asn Leu Asp Thr	
	260 265 270	
	ctg caa cag atc ctc aag gag aag att gct tca gag agg ttt ctg cta	864
	Leu Gln Gln Ile Leu Lys Glu Lys Ile Ala Ser Glu Arg Phe Leu Leu	
	275 280 285	
	gtc ctc gat gat gtg tgg agc gaa aac agg gat gac tgg gaa agg ctg	912
	Val Leu Asp Asp Val Trp Ser Glu Asn Arg Asp Asp Trp Glu Arg Leu	
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	tgc gca cca cta agg ttt gca gca aga ggc agc aag gtt ata gtc aca	960
	Cys Ala Pro Leu Arg Phe Ala Ala Arg Gly Ser Lys Val Ile Val Thr	
	305 310 315 320	
	act cga gac aca aag att gcc agc atc att ggc aca atg aag gaa att	1008
	Thr Arg Asp Thr Lys Ile Ala Ser Ile Gly Thr Met Lys Lys Glu Ile	
	325 330 335	
	tcg ctc gat ggt ctc cag gat gat gct tac tgg gag ctg ttc aag aaa	1056
	Ser Leu Asp Gly Leu Gln Asp Asp Ala Tyr Trp Glu Leu Phe Lys Lys	
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	Cys Ala Phe Gly Ser Val Asn Pro Gln Glu His Leu Glu Leu Glu Val	
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Lys	Thr	Leu	Gly	Ser	Leu	Leu	Arg	Leu	Asp	Val	Ser	Gln	Glu	His	Trp	400	
385					390					395							
aga	act	ata	atg	gaa	agt	gag	gta	tg	caa	ctg	cca	caa	gct	gaa	aat	1248	
Arg	Thr	Ile	Met	Glu	Ser	Glu	Val	Trp	Gln	Leu	Pro	Gln	Ala	Glu	Asn	415	
				405					410								
gaa	ata	ttg	cct	gtt	cta	tg	ctg	agc	tat	caa	cac	ctt	ccc	gga	cat	1296	
Glu	Ile	Leu	Pro	Val	Leu	Trp	Leu	Ser	Tyr	Gln	His	Leu	Pro	Gly	His	430	
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Leu	Arg	Gln	Cys	Phe	Ala	Phe	Cys	Ala	Val	Phe	His	Lys	Asp	Tyr	Leu	445	
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ttc	tat	aaa	cat	gag	ttg	atc	cag	act	tg	att	gca	gaa	ggc	ttc	att	1392	
Phe	Tyr	Lys	His	Glu	Leu	Ile	Gln	Thr	Trp	Ile	Ala	Glu	Gly	Phe	Ile	460	
		450				455											
gca	cat	caa	gga	aac	aag	agg	atg	gaa	gat	gtc	gga	agc	agc	tac	ttc	1440	
Ala	His	Gln	Gly	Asn	Lys	Arg	Met	Glu	Asp	Val	Gly	Ser	Ser	Tyr	Phe	480	
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His	Glu	Leu	Val	Asn	Arg	Ser	Phe	Phe	Gln	Glu	Ser	Arg	Trp	Arg	Gly	495	
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cga	tat	gtg	atg	cat	gac	ctc	ata	cac	gat	ctt	gcc	caa	ttt	ata	tca	1536	
Arg	Tyr	Val	Met	His	Asp	Leu	Ile	His	Asp	Leu	Ala	Gln	Phe	Ile	Ser	500	
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Val	Gly	Glu	Cys	His	Arg	Ile	Asp	Asp	Asp	Lys	Ser	Lys	Glu	Thr	Pro	515	
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agt	acg	act	cgt	cat	cta	tca	gta	gca	tta	act	gag	caa	atg	aag	ttg	1632	
Ser	Thr	Thr	Arg	His	Leu	Ser	Val	Ala	Leu	Thr	Glu	Gln	Met	Lys	Leu	530	
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Val	Asp	Phe	Ser	Gly	Tyr	Asn	Lys	Leu	Arg	Thr	Leu	Met	Ile	Asn	Asn	545	
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Gln	Arg	Asn	Gln	Tyr	Pro	Tyr	Met	Thr	Lys	Val	Asn	Ser	Cys	Leu	Leu	565	
				565					570					575			
cct	cat	agc	ttg	ttc	aaa	aga	Ctg	aaa	aga	atc	cat	gtt	tta	gtt	ttg	1776	
Pro	His	Ser	Leu	Phe	Lys	Arg	Leu	Lys	Arg	Ile	His	Val	Leu	Val	Leu	580	
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cag	aag	tgt	ggc	atg	aaa	gag	ttg	cct	gat	att	atc	ggt	gac	ttg	ata	1824	
Gln	Lys	Cys	Gly	Met	Lys	Glu	Gly	Pro	Asp	Ile	Ile	Gly	Asp	Leu	Ile	595	
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caa	ctt	cgg	tac	ctt	gac	ata	tcc	tac	aat	gct	tcg	att	cag	agg	ttg	1872	
Gln	Leu	Arg	Tyr	Leu	Asp	Ile	Ser	Tyr	Asn	Ala	Cys	Ile	Gln	Arg	Leu	610	
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ttg agg caa ctt cgt gta gaa gat gag ata att tcc aag ata tat gag Leu Arg Gln 660 Val Glu Asp Gln Ile Ile Ser Lys Ile Tyr Glu 665 670	2016
gtt ggg aag ctg att tct ctg caa gaa ttg tct gca ttc aaa gtg cta Val Gly Lys 675 Leu Ile Ser Leu Gln Glu Leu Ser Ala Phe Lys Val Leu 680 685	2064
aat aat cat gga aac aaa ctt gca gaa cta agt ggt ttg aca caa ctc Asn Asn His 690 Gly Asn Lys 695 Ala Glu Leu Ser Gly Leu Thr Gln Leu 700	2112
cgc agc act cta cga att aca aat ctt gaa aat gta ggg agt aaa gaa Arg Ser Thr Leu Arg 710 Thr Asn Leu Glu Asn 715 Val Gly Ser Lys Glu 705 720	2160
gaa gca agc aag gct aaa ctg cac agg aaa cag tat ctt gaa gca tta Glu Ala Ser Lys 725 Ala Lys Leu His Arg Lys Gln Tyr Leu Glu Ala Leu 730 735	2208
gag tta gag tgg gca gct ggc cag gtt tcc agc ttg gag cat gag tta Glu Leu Glu Trp 740 Ala Ala Gly Gln Val 745 Ser Ser Leu Glu His Glu Leu 750	2256
ctt gtc tcg gag gaa gta ctt tta ggt ctc caa cca cat cac ttc ctc Leu Val Ser 755 Glu Glu Val Leu Leu Gly Leu Gln Pro His 765 His Phe Leu 760	2304
aaa agt ttg aca atc aga ggg tac agt ggt gca aca gta ccc agt tgg Lys Ser Leu Thr Ile Arg 775 Tyr Ser Gly Ala Thr Val Pro Ser Trp 770 780	2352
ctg gat gtg aaa atg cta ccg aac ttg gga act ctt aaa cta gag aac Leu Asp Val Lys Met 790 Leu Pro Asn Leu Gly Thr 795 Leu Lys Leu Glu Asn 785 800	2400
tgt aca aga ctg gag ggt ctt tca tat att gga caa ctg cca cat ctc Cys Thr Arg Leu 805 Gly Leu Ser Tyr Ile Gly Gln Leu Pro His 815 Leu 810	2448
aag gtc ctt cat atg aag aga atg cct gtg gtg aaa caa atg agt cat Lys Val Leu His 820 Met Lys Arg Met Pro Val Val Lys Gln Met Ser His 825 830	2496
gaa tta tgt ggc tgt acg aaa agc aag ttg ttc cct agg cta gaa gag Glu Leu Cys 835 Gly Cys Thr Lys 840 Ser Lys Leu Phe Pro Arg 845 Leu Glu Glu 850	2544
tta gta ctg gag gat atg cca aca ttg aaa gaa ttc ccg aat ctt gca Leu Val Leu Glu Asp Met 855 Pro Thr Leu Lys Glu 860 Phe Pro Asn Leu Ala 850	2592
caa ctt cct tgt ctc aag att att cac atg aag aac atg ttt gca gta Gln Leu Pro Cys Leu 870 Ile Ile His Met Lys 875 Asn Met Phe Ala Val 865 880	2640

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aaa cat ata ggt cgt gaa tta tat ggt gat ata gag agc aat tgt ttt Lys His Ile Gly Arg Glu Leu Tyr Gly Asp Ile Glu Ser Asn Cys Phe 885 890 895	2688
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ctc cca aat ctt gga caa ctt cca cat ctt aag gtt att cac atg aag Leu Pro Asn Leu Gly Gln Leu Pro His Leu Lys Val Ile His Met Lys 915 920 925	2784
aac atg tct gca ctg aaa ctt ata ggt cgt gaa tta tgt gat tct aga Asn Met Ser Ala Leu Lys Leu Ile Gly Arg Glu Leu Cys Asp Ser Arg 930 935 940	2832
gag aaa att tgg ttt cct agg cta gaa gtg cta gtg ctg aag aac atg Glu Lys Ile Trp Phe Pro Arg Leu Glu Val Leu Val Leu Lys Asn Met 945 950 955 960	2880
ctg gca ctg gag gaa ctc cca agc ttg gac aac ttc cgt gtc tca aga Leu Ala Leu Glu Glu Leu Pro Ser Leu Asp Asn Phe Arg Val Ser Arg 965 970 975	2928
ttc ttc gca tcc agt gtc gaa gta ggc cat gga ctc ttt agt gct acg Phe Phe Ala Ser Ser Val Glu Val Gly His Gly Leu Phe Ser Ala Thr 980 985 990	2976
agg aat aaa tgg ttt cca agg ctg gaa gag cta gaa atc aag ggc atg Arg Asn Lys Trp Phe Pro Arg Leu Glu Glu Leu Glu Ile Lys Gly Met 995 1000 1005	3024
ctg aca ttt gag gaa ctc cat tct ctt gaa aaa ctg cca tgt ctc Leu Thr Phe Glu Glu Leu His Ser Leu Glu Lys Leu Pro Cys Leu 1010 1015 1020	3069
aag gtt ttc cgc atc aag gga ttg cca gca gtg aaa aag ata ggc Lys Val Phe Arg Ile Lys Gly Leu Pro Ala Val Lys Lys Ile Gly 1025 1030 1035	3114
cat gga tta ttt gat tct acc tgt cag aga gag tgt ttt cca agg His Gly Leu Phe Asp Ser Thr Cys Gln Arg Glu Cys Phe Pro Arg 1040 1045 1050	3159
ttg gaa gat ctc gta tta agc gac atg cca gca tgg gaa gag tgg Leu Glu Asp Leu Val Leu Ser Asp Met Pro Ala Trp Glu Glu Trp 1055 1060 1065	3204
tcg tgg gct gaa agg gag gag tta ttt tcc tgc ttg tgt aga ctt Ser Trp Ala Glu Arg Glu Glu Leu Phe Ser Cys Leu Cys Arg Leu 1070 1075 1080	3249
aaa att gaa caa tgc ccc aaa ctt aaa tgc ttg ctt ccc atc cct Lys Ile Glu Gln Cys Pro Lys Leu Leu Lys Cys Leu Leu Pro Ile Pro 1085 1090 1095	3294
cat tct ctc ata aaa ctt gaa tta tgg caa gtt ggg ctg aca gga His Ser Leu Ile Lys Leu Glu Leu Trp Gln Val Gly Leu Thr Gly 1100 1105 1110	3339
ctt cca gga tta tgc aaa gga att ggt gga ggt agc agc act aga Leu Pro Gly Leu Cys Lys Gly Ile Gly Gly Gly Ser Ser Thr Arg 1115 1120 1125	3384

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aat gct att cgg ata tgg gaa tgt gct gaa ctg ttg tgg ctg cct 3519 Asn Ala 1160 Ile Arg Ile Trp Glu 1165 Cys Ala Glu Leu Leu 1170 Trp Leu Pro			
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agg aac tgc ccc aag ctc atg agc atg aca cag tgt gag gag aat 3609 Arg Asn 1190 Cys Pro Lys Leu Met 1195 Ser Met Thr Gln Cys 1200 Glu Glu Asn			
gac ctc ctc ctc ccg ccg tta atc aag gca cta gaa ttg ggt gac 3654 Asp Leu 1205 Leu Leu Pro Pro Leu 1210 Ile Lys Ala Leu Glu 1215 Leu Gly Asp			
tgt gga aat ctt ggg aaa tcg ctg cct gga tgc cta cac aac ctc 3699 Cys Gly 1220 Asn Leu Gly Lys Ser 1225 Leu Pro Gly Cys Leu 1230 His Asn Leu			
agc tca ctt act cag ttg gcg ata tcc aat tgt cca tac atg gta 3744 Ser Ser 1235 Leu Thr Gln Leu Ala 1240 Ile Ser Asn Cys Pro 1245 Tyr Met Val			
tcc ctt cca agg gaa gta atg ctt cac ttg aag gaa ctt gga act 3789 Ser Leu 1250 Pro Arg Glu Val Met 1255 Leu His Leu Lys Glu 1260 Leu Gly Thr			
gta agg atc gag aat tgt gat ggg ctg gga tca ata gag ggt tta 3834 Val Arg 1265 Ile Glu Asn Cys Asp 1270 Gly Leu Gly Ser Ile 1275 Glu Gly Leu			
caa gtt ctc aaa tca ctc aag aga ttg gca atc ata gga tgt ccc 3879 Gln Val 1280 Leu Lys Ser Leu Lys 1285 Arg Leu Ala Ile 1290 Gly Cys Pro			
agg ctt ttg cta aat gaa ggg gat gag caa ggg gag gtc ttg tca 3924 Arg Leu 1295 Leu Leu Asn Glu Gly 1300 Asp Glu Gln Gly Glu 1305 Val Leu Ser			
ctg ctt gaa tta tca gta gat aaa aca gcc cta ctt aaa ctc tca 3969 Leu Leu 1310 Glu Leu Ser Val Asp 1315 Lys Thr Ala Leu Leu 1320 Lys Leu Ser			
ctt ata aaa aat aca cta cca ttc atc cat tct ctc aga atc atc 4014 Leu Ile 1325 Lys Asn Thr Leu Pro 1330 Phe Ile His Ser 1335 Arg Ile Ile			
tgg tct cct cag aaa gtg atg ttt gac ttg gag gag cag gaa ttg 4059 Trp Ser 1340 Pro Gln Lys Val Met 1345 Phe Asp Leu Glu Glu 1350 Gln Glu Leu			
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Lys	Asn	Leu	Gln	Ser	Leu	Pro	Thr	Glu	Leu	His	Thr	Leu	Pro	Ser	
1370						1375					1380				
ctc	cat	gct	ttg	gtt	gta	agt	gac	tcg	cca	cag	atc	caa	tca	ctg	4194
Leu	His	Ala	Leu	Val	Val	Ser	Asp	Cys	Pro	Gln	Ile	Gln	Ser	Leu	
1385						1390					1395				
ccg	gag	aag	gga	ctc	ccg	aca	ctc	ctc	aca	gat	tta	gga	ttt	gac	4239
Pro	Glu	Lys	Gly	Leu	Pro	Thr	Leu	Leu	Thr	Asp	Leu	Gly	Phe	Asp	
1400						1405					1410				
cat	tcg	cac	cca	gtg	ctg	act	gcg	caa	ctg	gaa	aag	cac	ctg	gca	4284
His	Cys	His	Pro	Val	Leu	Thr	Ala	Gln	Leu	Glu	Lys	His	Leu	Ala	
1415						1420					1425				
gag	atg	aag	agc	tca	ggt	cga	ttt	cac	cca	gtt	tat	gca	taggcaacat		4333
Glu	Met	Lys	Ser	Ser	Gly	Arg	Phe	His	Pro	Val	Tyr	Ala			
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<400> 2

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Arg Arg Arg Gly Leu His Asp Asp Leu Arg Arg Leu Arg Thr Ser Leu
 35 40 45

Leu Arg Ile His Ala Ile Leu Asp Lys Ala Glu Thr Arg Trp Asn His
 50 55 60

Lys Asn Thr Ser Leu Val Glu Leu Val Arg Gln Leu Lys Asp Ala Ala
 65 70 75 80

Tyr Asp Ala Glu Asp Leu Leu Glu Glu Leu Glu Tyr Gln Ala Ala Lys
 85 90 95

Gln Lys Val Glu His Arg Gly Asp Gln Ile Ser Asp Leu Phe Ser Phe
 100 105 110

Ser Leu Ser Thr Ala Ser Glu Trp Leu Gly Ala Asp Gly Asp Asp Ala
 115 120 125

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 Gln Phe Asp Trp Lys Val Val Arg Arg Glu Thr Ser Ser Phe Leu Thr
 165 170 175
 Glu Thr Val Val Phe Gly Arg Asp Gln Glu Arg Glu Lys Val Val Glu
 180 185 190
 Leu Leu Leu Asp Ser Gly Ser Gly Asn Ser Ser Phe Ser Val Leu Pro
 195 200 205
 Leu Val Gly Ile Gly Gly Val Gly Lys Thr Thr Leu Ala Gln Leu Val
 210 215 220
 Tyr Asn Asp Asn Arg Val Gly Asn Tyr Phe His Leu Lys Val Trp Val
 225 230 235 240
 Cys Val Ser Asp Asn Phe Asn Val Lys Arg Leu Thr Lys Glu Ile Ile
 245 250 255
 Glu Ser Ala Thr Lys Val Glu Gln Ser Asp Lys Leu Asn Leu Asp Thr
 260 265 270
 Leu Gln Gln Ile Leu Lys Glu Lys Ile Ala Ser Glu Arg Phe Leu Leu
 275 280 285
 Val Leu Asp Asp Val Trp Ser Glu Asn Arg Asp Asp Trp Glu Arg Leu
 290 295 300
 Cys Ala Pro Leu Arg Phe Ala Ala Arg Gly Ser Lys Val Ile Val Thr
 305 310 315 320
 Thr Arg Asp Thr Lys Ile Ala Ser Ile Ile Gly Thr Met Lys Glu Ile
 325 330 335
 Ser Leu Asp Gly Leu Gln Asp Asp Ala Tyr Trp Glu Leu Phe Lys Lys
 340 345 350
 Cys Ala Phe Gly Ser Val Asn Pro Gln Glu His Leu Glu Leu Glu Val
 355 360 365
 Ile Gly Arg Lys Ile Ala Gly Lys Leu Lys Gly Ser Pro Leu Ala Ala

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375

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 385 390 395 400
 Arg Thr Ile Met Glu Ser Glu Val Trp Gln Leu Pro Gln Ala Glu Asn
 405 410 415
 Glu Ile Leu Pro Val Leu Trp Leu Ser Tyr Gln His Leu Pro Gly His
 420 425 430
 Leu Arg Gln Cys Phe Ala Phe Cys Ala Val Phe His Lys Asp Tyr Leu
 435 440 445
 Phe Tyr Lys His Glu Leu Ile Gln Thr Trp Ile Ala Glu Gly Phe Ile
 450 455 460
 Ala His Gln Gly Asn Lys Arg Met Glu Asp Val Gly Ser Ser Tyr Phe
 465 470 475 480
 His Glu Leu Val Asn Arg Ser Phe Phe Gln Glu Ser Arg Trp Arg Gly
 485 490 495
 Arg Tyr Val Met His Asp Leu Ile His Asp Leu Ala Gln Phe Ile Ser
 500 505 510
 Val Gly Glu Cys His Arg Ile Asp Asp Asp Lys Ser Lys Glu Thr Pro
 515 520 525
 Ser Thr Thr Arg His Leu Ser Val Ala Leu Thr Glu Gln Met Lys Leu
 530 535 540
 Val Asp Phe Ser Gly Tyr Asn Lys Leu Arg Thr Leu Met Ile Asn Asn
 545 550 555 560
 Gln Arg Asn Gln Tyr Pro Tyr Met Thr Lys Val Asn Ser Cys Leu Leu
 565 570 575
 Pro His Ser Leu Phe Lys Arg Leu Lys Arg Ile His Val Leu Val Leu
 580 585 590
 Gln Lys Cys Gly Met Lys Glu Leu Pro Asp Ile Ile Gly Asp Leu Ile
 595 600 605
 Gln Leu Arg Tyr Leu Asp Ile Ser Tyr Asn Ala Cys Ile Gln Arg Leu
 610 615 620

DAVI172SequenceListing.txt

Pro Glu Ser Leu Cys Asp Leu Tyr Asn Leu Gln Ala Leu Arg Leu Trp
625 630 635 640

Gly Cys Gln Leu Arg Ser Phe Pro Gln Gly Met Ser Lys Leu Ile Asn
645 650 655

Leu Arg Gln Leu Arg Val Glu Asp Glu Ile Ile Ser Lys Ile Tyr Glu
660 665 670

Val Gly Lys Leu Ile Ser Leu Gln Glu Leu Ser Ala Phe Lys Val Leu
675 680 685

Asn Asn His Gly Asn Lys Leu Ala Glu Leu Ser Gly Leu Thr Gln Leu
690 695 700

Arg Ser Thr Leu Arg Ile Thr Asn Leu Glu Asn Val Gly Ser Lys Glu
705 710 715 720

Glu Ala Ser Lys Ala Lys Leu His Arg Lys Gln Tyr Leu Glu Ala Leu
725 730 735

Glu Leu Glu Trp Ala Ala Gly Gln Val Ser Ser Leu Glu His Glu Leu
740 745 750

Leu Val Ser Glu Glu Val Leu Leu Gly Leu Gln Pro His His Phe Leu
755 760 765

Lys Ser Leu Thr Ile Arg Gly Tyr Ser Gly Ala Thr Val Pro Ser Trp
770 775 780

Leu Asp Val Lys Met Leu Pro Asn Leu Gly Thr Leu Lys Leu Glu Asn
785 790 795 800

Cys Thr Arg Leu Glu Gly Leu Ser Tyr Ile Gly Gln Leu Pro His Leu
805 810 815

Lys Val Leu His Met Lys Arg Met Pro Val Val Lys Gln Met Ser His
820 825 830

Glu Leu Cys Gly Cys Thr Lys Ser Lys Leu Phe Pro Arg Leu Glu Glu
835 840 845

Leu Val Leu Glu Asp Met Pro Thr Leu Lys Glu Phe Pro Asn Leu Ala
850 855 860

Gln Leu Pro Cys Leu Lys Ile Ile His Met Lys Asn Met Phe Ala Val
865 870 875 880

DAVI172SequenceListing.txt

Lys His Ile Gly Arg Glu Leu Tyr Gly Asp Ile Glu Ser Asn Cys Phe
 885 890 895
 Leu Ser Leu Glu Glu Leu Val Leu Gln Asp Met Leu Thr Leu Glu Glu
 900 905 910
 Leu Pro Asn Leu Gly Gln Leu Pro His Leu Lys Val Ile His Met Lys
 915 920 925
 Asn Met Ser Ala Leu Lys Leu Ile Gly Arg Glu Leu Cys Asp Ser Arg
 930 935 940
 Glu Lys Ile Trp Phe Pro Arg Leu Glu Val Leu Val Leu Lys Asn Met
 945 950 955 960
 Leu Ala Leu Glu Glu Leu Pro Ser Leu Asp Asn Phe Arg Val Ser Arg
 965 970 975
 Phe Phe Ala Ser Ser Val Glu Val Gly His Gly Leu Phe Ser Ala Thr
 980 985 990
 Arg Asn Lys Trp Phe Pro Arg Leu Glu Glu Leu Glu Ile Lys Gly Met
 995 1000 1005
 Leu Thr Phe Glu Glu Leu His Ser Leu Glu Lys Leu Pro Cys Leu
 1010 1015 1020
 Lys Val Phe Arg Ile Lys Gly Leu Pro Ala Val Lys Lys Ile Gly
 1025 1030 1035
 His Gly Leu Phe Asp Ser Thr Cys Gln Arg Glu Cys Phe Pro Arg
 1040 1045 1050
 Leu Glu Asp Leu Val Leu Ser Asp Met Pro Ala Trp Glu Glu Trp
 1055 1060 1065
 Ser Trp Ala Glu Arg Glu Glu Leu Phe Ser Cys Leu Cys Arg Leu
 1070 1075 1080
 Lys Ile Glu Gln Cys Pro Lys Leu Lys Cys Leu Leu Pro Ile Pro
 1085 1090 1095
 His Ser Leu Ile Lys Leu Glu Leu Trp Gln Val Gly Leu Thr Gly
 1100 1105 1110
 Leu Pro Gly Leu Cys Lys Gly Ile Gly Gly Gly Ser Ser Thr Arg
 1115 1120 1125

DAVI172SequenceListing.txt

Thr Ala Ser Leu Ser Leu Leu His Ile Ile Lys Cys Pro Asn Leu
1130 1135 1140

Arg Asn Leu Gly Glu Gly Leu Leu Ser Asn His Leu Pro His Ile
1145 1150 1155

Asn Ala Ile Arg Ile Trp Glu Cys Ala Glu Leu Leu Trp Leu Pro
1160 1165 1170

Val Lys Arg Phe Arg Glu Phe Thr Thr Leu Glu Asn Leu Ser Ile
1175 1180 1185

Arg Asn Cys Pro Lys Leu Met Ser Met Thr Gln Cys Glu Glu Asn
1190 1195 1200

Asp Leu Leu Leu Pro Pro Leu Ile Lys Ala Leu Glu Leu Gly Asp
1205 1210 1215

Cys Gly Asn Leu Gly Lys Ser Leu Pro Gly Cys Leu His Asn Leu
1220 1225 1230

Ser Ser Leu Thr Gln Leu Ala Ile Ser Asn Cys Pro Tyr Met Val
1235 1240 1245

Ser Leu Pro Arg Glu Val Met Leu His Leu Lys Glu Leu Gly Thr
1250 1255 1260

Val Arg Ile Glu Asn Cys Asp Gly Leu Gly Ser Ile Glu Gly Leu
1265 1270 1275

Gln Val Leu Lys Ser Leu Lys Arg Leu Ala Ile Ile Gly Cys Pro
1280 1285 1290

Arg Leu Leu Leu Asn Glu Gly Asp Glu Gln Gly Glu Val Leu Ser
1295 1300 1305

Leu Leu Glu Leu Ser Val Asp Lys Thr Ala Leu Leu Lys Leu Ser
1310 1315 1320

Leu Ile Lys Asn Thr Leu Pro Phe Ile His Ser Leu Arg Ile Ile
1325 1330 1335

Trp Ser Pro Gln Lys Val Met Phe Asp Leu Glu Glu Gln Glu Leu
1340 1345 1350

Val His Ser Leu Thr Ala Leu Arg Arg Leu Glu Phe Phe Arg Cys

DAVI172SequenceListing.txt

1355

1360

1365

Lys Asn Leu Gln Ser Leu Pro Thr Glu Leu His Thr Leu Pro Ser
1370 1375 1380

Leu His Ala Leu Val Val Ser Asp Cys Pro Gln Ile Gln Ser Leu
1385 1390 1395

Pro Glu Lys Gly Leu Pro Thr Leu Leu Thr Asp Leu Gly Phe Asp
1400 1405 1410

His Cys His Pro Val Leu Thr Ala Gln Leu Glu Lys His Leu Ala
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Glu Met Lys Ser Ser Gly Arg Phe His Pro Val Tyr Ala
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gaa atc ttt aac cgg tcc atc aat ttg atc gtc gcg gaa ctc cgg ttg 96
Glu Ile Phe Asn Arg Ser Ile Asn Leu Ile Val Ala Glu Leu Arg Leu
20 25 30

cag ttg aat gcg aga gcc gag ctg aac aat ctg cag aga aca cta ttg 144
Gln Leu Asn Ala Arg Ala Glu Leu Asn Asn Leu Gln Arg Thr Leu Leu
35 40 45

agg act cac tct ctg ctc gag gag gca aag gcg agg cgg atg act gac 192
Arg Thr His Ser Leu Leu Glu Glu Ala Lys Ala Arg Arg Met Thr Asp
50 55 60

aag tct ctc gtg ctg tgg ctg atg gag ctc aag gaa tgg gcc tac gac 240
Lys Ser Leu Val Leu Trp Leu Met Glu Leu Lys Glu Trp Ala Tyr Asn
65 70 75 80

gcc gac gac atc ctc gac gag tac gag gcc gca gca atc cga ctg aag 288
Ala Asp Asp Ile Leu Asp Glu Tyr Glu Ala Ala Ala Ile Arg Leu Lys
85 90 95

gta aca cgc tcg acc ttc aaa cgt ctt atc gat cat gtg att ata aat 336
Val Thr Arg Ser Thr Phe Lys Arg Leu Ile Asp His Val Ile Ile Asn
100 105 110

gtt cca tta gcg cac aaa gta gca gac atc agg aaa agg ttg aac ggg 384

DAVI172SequenceListing.txt

Val	Pro	Leu	Ala	His	Lys	Val	Ala	Asp	Ile	Arg	Lys	Arg	Leu	Asn	Gly	
		115					120					125				
gtc	act	ctt	gag	agg	gag	cta	aat	ctg	ggt	gcg	ctg	gaa	ggg	tcg	cag	432
Val	Thr	Leu	Glu	Arg	Glu	Leu	Asn	Leu	Gly	Ala	Leu	Glu	Gly	Ser	Gln	
		130				135					140					
ccg	ctt	gat	tcc	acg	aaa	aga	ggt	gtg	acc	act	tct	ctt	ctg	act	gaa	480
Pro	Leu	Asp	Ser	Thr	Lys	Arg	Gly	Val	Thr	Thr	Ser	Leu	Leu	Thr	Glu	
		145			150					155					160	
tct	tgt	att	gtc	ggg	cga	gct	caa	gat	aag	gag	aat	ttg	att	cgg	ttg	528
Ser	Cys	Ile	Val	Gly	Arg	Ala	Gln	Asp	Lys	Glu	Asn	Leu	Ile	Arg	Leu	
				165					170					175		
ctg	ttg	gag	ccc	agc	gat	ggg	gcg	ggt	cct	ggt	ggt	cct	ata	ggt	gga	576
Leu	Leu	Glu	Pro	Ser	Asp	Gly	Ala	Val	Pro	Val	Val	Pro	Ile	Val	Gly	
			180					185					190			
tta	gga	ggg	gca	ggg	aag	acg	act	ctg	tct	cag	ctt	atc	ttt	aat	gac	624
Leu	Gly	Gly	Ala	Gly	Lys	Thr	Thr	Leu	Ser	Gln	Leu	Ile	Phe	Asn	Asp	
		195					200					205				
aag	aga	gtg	gag	gag	cat	ttc	cca	ttg	aga	atg	tgg	gtg	tgt	gtg	tct	672
Lys	Arg	Val	Glu	Glu	His	Phe	Pro	Leu	Arg	Met	Trp	Val	Cys	Val	Ser	
		210				215					220					
gac	gat	ttt	gat	gtg	aag	aga	att	act	aga	gag	atc	aca	gag	tac	gcc	720
Asp	Asp	Phe	Asp	Val	Lys	Arg	Ile	Thr	Arg	Glu	Ile	Thr	Glu	Tyr	Ala	
		225			230				235						240	
acc	aac	gga	agg	ttc	atg	gat	ctc	acc	aac	ttg	aat	atg	ctt	caa	ggt	768
Thr	Asn	Gly	Arg	Phe	Met	Asp	Leu	Thr	Asn	Leu	Asn	Met	Leu	Gln	Val	
				245					250					255		
aat	ctg	aaa	gag	gag	ata	agg	ggg	acg	aca	ttt	ttg	ctt	gtg	ctg	gat	816
Asn	Leu	Lys	Glu	Glu	Ile	Arg	Gly	Thr	Thr	Phe	Leu	Leu	Val	Leu	Asp	
			260				265						270			
gat	gtg	tgg	aac	gaa	gac	ccc	gtg	aag	tgg	gaa	agc	ctg	tta	gcc	cca	864
Asp	Val	Trp	Asn	Glu	Asp	Pro	Val	Lys	Trp	Glu	Ser	Leu	Leu	Ala	Pro	
		275					280					285				
tta	gat	gcc	gga	gga	cgg	gga	agc	gtg	gtc	att	gtg	acg	aca	cag	agc	912
Leu	Asp	Ala	Gly	Gly	Arg	Gly	Ser	Val	Val	Ile	Val	Thr	Thr	Gln	Ser	
		290				295					300					
aaa	aag	gtc	gcc	gat	gtc	acc	ggc	acg	atg	gag	cca	tac	ggt	ctc	gag	960
Lys	Lys	Val	Ala	Asp	Val	Thr	Gly	Thr	Met	Glu	Pro	Tyr	Val	Leu	Glu	
		305			310					315				320		
gag	tta	acg	gag	gat	gac	agt	tgg	tca	ctc	atc	gag	agt	cac	tcc	ttc	1008
Glu	Leu	Thr	Glu	Asp	Asp	Ser	Trp	Ser	Leu	Ile	Glu	Ser	His	Ser	Phe	
				325					330					335		
agg	gag	gcg	agc	tgc	tct	agt	aca	aat	cct	aga	atg	gaa	gag	atc	ggg	1056
Arg	Glu	Ala	Ser	Cys	Ser	Ser	Thr	Asn	Pro	Arg	Met	Glu	Glu	Ile	Gly	
			340					345					350			
agg	aag	ata	gcc	aag	aag	atc	agt	ggc	cta	cct	tac	gga	gca	aca	gca	1104
Arg	Lys	Ile	Ala	Lys	Lys	Ile	Ser	Gly	Leu	Pro	Tyr	Gly	Ala	Thr	Ala	
		355					360					365				

DAVI172SequenceListing.txt

atg ggg aga tat cta aga tct	aag cac gga gaa agc agc tgg aga gaa	1152
Met Gly Arg Tyr Leu Arg Ser	Lys His Gly Glu Ser Ser Trp Arg Glu	
370	375 380	
gtc ttg gaa act gag act tgg gag atg cca ccg gct gca agt gat gtg	1200	
Val Leu Glu Thr Glu Thr Trp Glu Met Pro Pro Ala Ala Ser Asp Val		
385	390 395 400	
tta tcc gct cta agg aga agt tac gac aat cta ccc cct cag ctg aag	1248	
Leu Ser Ala Leu Arg Arg Ser Tyr Asp Asn Leu Pro Pro Gln Leu Lys		
405	410 415	
ctc tgt ttt gcc ttc tgt gct ctg ttt aca aag ggc tac agg ttt cga	1296	
Leu Cys Phe Ala Phe Cys Ala Leu Phe Thr Lys Gly Tyr Arg Phe Arg		
420	425 430	
aag gat aca ctg atc cac atg tgg ata gct caa aat ttg att caa tca	1344	
Lys Asp Thr Leu Ile His Met Trp Ile Ala Gln Asn Leu Ile Gln Ser		
435	440 445	
aca gag tcg aaa aga tcg gag gac atg gca gaa gaa tgc ttt gat gat	1392	
Thr Glu Ser Lys Arg Ser Glu Asp Met Ala Glu Glu Cys Phe Asp Asp		
450	455 460	
ttg gtg tgc aga ttc ttc ttc cgg tac tcc tgg ggc aac tat gtg atg	1440	
Leu Val Cys Arg Phe Phe Phe Arg Tyr Ser Trp Gly Asn Tyr Val Met		
465	470 475 480	
aat gac tca gtc cat gac ctc gct cga tgg gtt tca ttg gat gaa tat	1488	
Asn Asp Ser Val His Asp Leu Ala Arg Trp Val Ser Leu Asp Glu Tyr		
485	490 495	
ttt cga gca gat gaa gac tca cca ttg cat att tca aag cca att cgt	1536	
Phe Arg Ala Asp Glu Asp Ser Pro Leu His Ile Ser Lys Pro Ile Arg		
500	505 510	
cat ttg tca tgg tgc agt gaa aga ata acc aat gtt ctt gag gat aat	1584	
His Leu Ser Trp Cys Ser Glu Arg Ile Thr Asn Val Leu Asp Asn		
515	520 525	
aac act ggt gga gat gct gtc aat ccg ctc agc agt ttg cgc act ctc	1632	
Asn Thr Gly Gly Asp Ala Val Asn Pro Leu Ser Ser Leu Arg Thr Leu		
530	535 540	
ctt ttc tta ggc caa tct gag ttc cgg tcg tat cat ctt ctt gat aga	1680	
Leu Phe Leu Gly Gln Ser Glu Phe Arg Ser Tyr His Leu Leu Asp Arg		
545	550 555 560	
atg ttc agg atg ttg agc cga atc cgt gtt ttg gat ttc agc aac tgc	1728	
Met Phe Arg Met Leu Ser Arg Ile Arg Val Leu Asp Phe Ser Asn Cys		
565	570 575	
gtc ata aga aat ttg cct tct tcg gtt gga aat ctg aaa cat ctg cgt	1776	
Val Ile Arg Asn Leu Pro Ser Ser Val Gly Asn Leu Lys His Leu Arg		
580	585 590	
tac ctg ggc ctg tct aat acg aga att caa agg ttg ccg gag tct gta	1824	
Tyr Leu Gly Leu Ser Asn Thr Arg Ile Gln Arg Leu Pro Glu Ser Val		
595	600 605	
aca cgt ctt tgc ctc ctt cag aca ttg cta cta gag ggc tgt gaa ctg	1872	
Thr Arg Leu Leu Cys Leu Leu Gln Thr Leu Leu Leu Glu Cys Glu Leu		
610	615 620	

DAVI172SequenceListing.txt

tgc agg tta cca aga agc atg agc agg ctc gtc aaa ctg agg cag ctc Cys Arg Leu Pro Arg Ser Met Ser Arg Leu Val Lys Leu Arg Gln Leu 625 630 635 640	1920
aaa gca aat cca gat gta att gcc gac ata gcc aaa gtc ggg aga ttg Lys Ala Asn Pro Asp Val Ile Ala Asp Ile Ala Lys Val Gly Arg Leu 645 650 655	1968
atc gaa ctt caa gag ctg aaa gcc tat aat gtt gac aag aaa aaa gga Ile Glu Leu 660 Leu Lys Tyr 665 Asn Val Asp Lys Lys 670 Lys Gly	2016
cat ggg att gca gag cta agt gca atg aat cag ctt cac ggt gat ctt His Gly Ile Ala Glu Leu Ser 680 Met Asn Gln Leu His 685 Gly Asp Leu 675	2064
tcc att aga aac ctt caa aat gta gag aaa acg cga gag tct cgg aag Ser Ile Arg Asn Leu Gln Asn 695 Val Glu Lys Thr 700 Arg Glu Ser Arg Lys 690	2112
gcg agg ttg gac gag aaa cag aag ctt aag ctc ttg gat ctg cga tgg Ala Arg Leu Asp Glu Lys 710 Gln Lys Leu Lys 715 Leu Asp Leu Arg Trp 705 720	2160
gct gac ggt agg ggt gcc gga gaa tgt gat cgt gac agg aaa gtt ctt Ala Asp Gly Arg Gly Ala Gly Glu Cys 730 Asp Arg Asp Arg Lys gtt ctt 725 735 Leu	2208
aaa ggc ctc cga cca cat cca aac ctg aga gaa ttg agt atc aaa tac Lys Gly Leu Arg Pro His Pro Asn 745 Arg Glu Leu Ser Ile Lys Tyr 740 750	2256
tac gga ggc act tca tct ccg agt tgg atg acg gat cag tat ctg ccc Tyr Gly 755 Thr Ser Ser Pro Ser Trp Met Thr Asp Gln Tyr Leu Pro 760 765	2304
aac atg gaa acg att cgc ctg cgt agc tgc gca agg ttg acg gaa ctc Asn Met Glu Thr Ile Arg Leu 775 Arg Ser Cys Ala Arg 780 Leu Thr Glu Leu 770	2352
cca tgt ctc ggt cag ctg cat atc ctt aga cat ttg cac atc gat ggg Pro Cys Leu Gly Gln Leu His Ile Leu Arg His 795 Leu His Ile Asp Gly 785 800	2400
atg tcc caa gtg aga caa att aat ctg caa ttt tat ggc acc gga gaa Met Ser Gln Val 805 Gln Ile Asn Leu Gln Phe Tyr Gly Thr Gly Glu 810 815	2448
gtt tca ggt ttt cca ttg ctg gag ctc ctg aac ata cgt cgc atg ccc Val Ser Gly Phe Pro Leu Leu Glu 825 Leu Asn Ile Arg Arg 830 Met Pro 820 835	2496
agt ctg gag gaa tgg tgc gaa cca cgg aga aac tgt tgc tac ttc cct Ser Leu Glu 835 Glu Trp Ser Glu Pro 840 Arg Arg Asn Cys Cys Tyr Phe Pro 845	2544
cgc ctc cat aaa ctg ctg atc gag gat tgt ccc agg ctc agg aat ctg Arg Leu His Lys Leu Leu Ile 855 Glu Asp Cys Pro Arg 860 Leu Arg Asn Leu 850	2592
ccc tcc ctc cca cca aca ctg gaa gaa cta agg ata tca aga aca gga Pro Ser Leu Pro Pro Thr Leu Glu Glu Leu Arg Ile Ser Arg Thr Gly 865 870	2640

DAVI172SequenceListing.txt

865	870	875	880	
cta gtt gat ctt cca gga ttc cat gga aac ggt gat gtg acg acg aat	885	890	895	2688
Leu Val Asp Leu Ser Pro Gly Phe His Gly Asn Gly Asp Val Thr Thr Asn				
gtt tcc ctt tct tct ttg cat gtt tcg gag tgt cga gaa ctg aga tcc	900	905	910	2736
Val Ser Leu Ser Ser Leu His Val Ser Gly Cys Arg Glu Leu Arg Ser				
cta agc gaa gga ttg ttg cag cac aac ctc gtc gcc ctc aag aca gcg	915	920	925	2784
Leu Ser Glu Gly Leu Leu Gln His Asn Leu Val Ala Leu Lys Thr Ala				
gca ttt acc gat tgt gat tct ctt gag ttt ttg ccg gcg gaa gga ttc	930	935	940	2832
Ala Phe Thr Asp Cys Asp Ser Leu Glu Phe Leu Pro Ala Glu Gly Phe				
aga aca gcc att tca ctt gaa tca ttg ata atg act aat tgt cca ctg	945	950	955	2880
Arg Thr Ala Ile Ser Leu Glu Ser Leu Ile Met Thr Asn Cys Pro Leu				
cct tgc agt ttt ctt ttg cct tcc tct ctc gag cat cta aag ttg cag	965	970	975	2928
Pro Cys Ser Phe Leu Leu Pro Ser Ser Leu Glu His Leu Lys Leu Gln				
cca tgc ctc tat cca aac aac aat gag gat tca ctg tca aca tgc ttc	980	985	990	2976
Pro Cys Leu Tyr Pro Asn Asn Asn Glu Asp Ser Leu Ser Thr Cys Phe				
gag aac ctc aca tct ctt tcc ttc ttg gac atc aaa gat tgt cca aat	995	1000	1005	3024
Glu Asn Leu Thr Ser Leu Ser Phe Leu Asp Ile Lys Asp Cys Pro Asn				
ctg tca tca ttt cca ccg ggt cct cta tgt cag cta tca gca ctc	1010	1015	1020	3069
Leu Ser Ser Phe Pro Pro Gly Pro Leu Cys Gln Leu Ser Ala Leu				
caa cat ttg tcc ctc gtc aat tgc cag agg cta caa tct att ggc	1025	1030	1035	3114
Gln His Leu Ser Leu Val Asn Cys Gln Arg Leu Gln Ser Ile Gly				
ttc cag gca ctc acc tcc ctc gaa agc ttg aca att cag aac tgc	1040	1045	1050	3159
Phe Gln Ala Leu Thr Ser Leu Glu Ser Leu Thr Ile Gln Asn Cys				
cct cgc ctc acc atg tca cac agt ttg gtt gag gtg aat aac tct	1055	1060	1065	3204
Pro Arg Leu Thr Met Ser His Ser Leu Val Glu Val Asn Asn Ser				
tcc gat aca ggg ctc gcg ttt aat atc act cga tgg atg cgc aga	1070	1075	1080	3249
Ser Asp Thr Gly Leu Ala Phe Asn Ile Thr Arg Trp Met Arg Arg				
cga aca ggt gac gac ggc ttg atg ctc aga cac cga gca caa aat	1085	1090	1095	3294
Arg Thr Gly Asp Asp Gly Leu Met Leu Arg His Arg Ala Gln Asn				
gat tca ttt ttc ggg gga ctt ctg caa cac ctc acc ttc ctc cag	1100	1105	1110	3339
Asp Ser Phe Phe Gly Gly Leu Leu Gln His Leu Thr Phe Leu Gln				
ttt cta aag atc tgc cag tgt cca caa ctc gta acc ttc acc ggc				3384

DAVI172SequenceListing.txt

Phe	Leu	Lys	Ile	Cys	Gln	Cys	Pro	Gln	Leu	Val	Thr	Phe	Thr	Gly	
1115						1120					1125				
gaa	gag	gaa	gag	aag	tgg	aga	aac	ctt	act	tct	ctt	caa	att	ctg	3429
Glu	Glu	Glu	Glu	Lys	Trp	Arg	Asn	Leu	Thr	Ser	Leu	Gln	Ile	Leu	
1130						1135					1140				
cac	atc	gtt	gat	tgt	cca	aac	ctg	gag	gta	ctg	cct	gca	aac	ttg	3474
His	Ile	Val	Asp	Cys	Pro	Asn	Leu	Glu	Val	Leu	Pro	Ala	Asn	Leu	
1145						1150					1155				
caa	agc	ctc	tgc	tcc	ctc	agc	acc	ttg	tac	atc	gtc	aga	tgc	cca	3519
Gln	Ser	Leu	Cys	Ser	Leu	Ser	Thr	Leu	Tyr	Ile	Val	Arg	Cys	Pro	
1160						1165					1170				
aga	atc	cat	gcg	ttt	cct	ccc	gga	ggg	gtc	agc	atg	tcc	ctg	gca	3564
Arg	Ile	His	Ala	Phe	Pro	Pro	Gly	Gly	Val	Ser	Met	Ser	Leu	Ala	
1175						1180					1185				
cat	ttg	gtc	atc	cat	gaa	tgc	cct	cag	ctg	tgt	cag	cga	tgt	gat	3609
His	Leu	Val	Ile	His	Glu	Cys	Pro	Gln	Leu	Cys	Gln	Arg	Cys	Asp	
1190						1195					1200				
cca	ccg	gga	ggg	gat	gat	tgg	ccc	tta	ata	gct	aat	gta	cca	aga	3654
Pro	Pro	Gly	Gly	Asp	Asp	Trp	Pro	Leu	Ile	Ala	Asn	Val	Pro	Arg	
1205						1210					1215				
ata	tgt	ctt	gga	agg	act	cat	cca	tgt	cgc	tgt	agc	acc	acc	tga	3699
Ile	Cys	Leu	Gly	Arg	Thr	His	Pro	Cys	Arg	Cys	Ser	Thr	Thr		
1220						1225					1230				

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Met	Ala	Asp	Val	Thr	Pro	Gln	Ala	Ala	Ala	Val	Phe	Ser	Leu	Val	Asn
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Glu	Ile	Phe	Asn	Arg	Ser	Ile	Asn	Leu	Ile	Val	Ala	Glu	Leu	Arg	Leu
			20					25					30		
Gln	Leu	Asn	Ala	Arg	Ala	Glu	Leu	Asn	Asn	Leu	Gln	Arg	Thr	Leu	Leu
		35					40					45			
Arg	Thr	His	Ser	Leu	Leu	Glu	Glu	Ala	Lys	Ala	Arg	Arg	Met	Thr	Asp
	50					55					60				
Lys	Ser	Leu	Val	Leu	Trp	Leu	Met	Glu	Leu	Lys	Glu	Trp	Ala	Tyr	Asp
65					70					75				80	
Ala	Asp	Asp	Ile	Leu	Asp	Glu	Tyr	Glu	Ala	Ala	Ala	Ile	Arg	Leu	Lys
				85					90					95	

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Val Thr Arg Ser Thr Phe Lys Arg Leu Ile Asp His Val Ile Ile Asn
100 105 110

Val Pro Leu Ala His Lys Val Ala Asp Ile Arg Lys Arg Leu Asn Gly
115 120 125

Val Thr Leu Glu Arg Glu Leu Asn Leu Gly Ala Leu Glu Gly Ser Gln
130 135 140

Pro Leu Asp Ser Thr Lys Arg Gly Val Thr Thr Ser Leu Leu Thr Glu
145 150 155 160

Ser Cys Ile Val Gly Arg Ala Gln Asp Lys Glu Asn Leu Ile Arg Leu
165 170 175

Leu Leu Glu Pro Ser Asp Gly Ala Val Pro Val Val Pro Ile Val Gly
180 185 190

Leu Gly Gly Ala Gly Lys Thr Thr Leu Ser Gln Leu Ile Phe Asn Asp
195 200 205

Lys Arg Val Glu Glu His Phe Pro Leu Arg Met Trp Val Cys Val Ser
210 215 220

Asp Asp Phe Asp Val Lys Arg Ile Thr Arg Glu Ile Thr Glu Tyr Ala
225 230 235 240

Thr Asn Gly Arg Phe Met Asp Leu Thr Asn Leu Asn Met Leu Gln Val
245 250 255

Asn Leu Lys Glu Glu Ile Arg Gly Thr Thr Phe Leu Leu Val Leu Asp
260 265 270

Asp Val Trp Asn Glu Asp Pro Val Lys Trp Glu Ser Leu Leu Ala Pro
275 280 285

Leu Asp Ala Gly Gly Arg Gly Ser Val Val Ile Val Thr Thr Gln Ser
290 295 300

Lys Lys Val Ala Asp Val Thr Gly Thr Met Glu Pro Tyr Val Leu Glu
305 310 315 320

Glu Leu Thr Glu Asp Asp Ser Trp Ser Leu Ile Glu Ser His Ser Phe
325 330 335

Arg Glu Ala Ser Cys Ser Ser Thr Asn Pro Arg Met Glu Glu Ile Gly
340 345 350

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Arg Lys Ile Ala Lys Lys Ile Ser Gly Leu Pro Tyr Gly Ala Thr Ala
 355 360 365
 Met Gly Arg Tyr Leu Arg Ser Lys His Gly Glu Ser Ser Trp Arg Glu
 370 375 380
 Val Leu Glu Thr Glu Thr Trp Glu Met Pro Pro Ala Ala Ser Asp Val
 385 390 395 400
 Leu Ser Ala Leu Arg Arg Ser Tyr Asp Asn Leu Pro Pro Gln Leu Lys
 405 410 415
 Leu Cys Phe Ala Phe Cys Ala Leu Phe Thr Lys Gly Tyr Arg Phe Arg
 420 425 430
 Lys Asp Thr Leu Ile His Met Trp Ile Ala Gln Asn Leu Ile Gln Ser
 435 440 445
 Thr Glu Ser Lys Arg Ser Glu Asp Met Ala Glu Glu Cys Phe Asp Asp
 450 455 460
 Leu Val Cys Arg Phe Phe Phe Arg Tyr Ser Trp Gly Asn Tyr Val Met
 465 470 475 480
 Asn Asp Ser Val His Asp Leu Ala Arg Trp Val Ser Leu Asp Glu Tyr
 485 490 495
 Phe Arg Ala Asp Glu Asp Ser Pro Leu His Ile Ser Lys Pro Ile Arg
 500 505 510
 His Leu Ser Trp Cys Ser Glu Arg Ile Thr Asn Val Leu Glu Asp Asn
 515 520 525
 Asn Thr Gly Gly Asp Ala Val Asn Pro Leu Ser Ser Leu Arg Thr Leu
 530 535 540
 Leu Phe Leu Gly Gln Ser Glu Phe Arg Ser Tyr His Leu Leu Asp Arg
 545 550 555 560
 Met Phe Arg Met Leu Ser Arg Ile Arg Val Leu Asp Phe Ser Asn Cys
 565 570 575
 Val Ile Arg Asn Leu Pro Ser Ser Val Gly Asn Leu Lys His Leu Arg
 580 585 590
 Tyr Leu Gly Leu Ser Asn Thr Arg Ile Gln Arg Leu Pro Glu Ser Val
 595 600 605

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Thr Arg Leu Cys Leu Leu Gln Thr Leu Leu Leu Glu Gly Cys Glu Leu
 610 615 620
 Cys Arg Leu Pro Arg Ser Met Ser Arg Leu Val Lys Leu Arg Gln Leu
 625 630 635
 Lys Ala Asn Pro Asp Val Ile Ala Asp Ile Ala Lys Val Gly Arg Leu
 645 650 655
 Ile Glu Leu Gln Glu Leu Lys Ala Tyr Asn Val Asp Lys Lys Lys Gly
 660 665 670
 His Gly Ile Ala Glu Leu Ser Ala Met Asn Gln Leu His Gly Asp Leu
 675 680 685
 Ser Ile Arg Asn Leu Gln Asn Val Glu Lys Thr Arg Glu Ser Arg Lys
 690 695 700
 Ala Arg Leu Asp Glu Lys Gln Lys Leu Lys Leu Leu Asp Leu Arg Trp
 705 710 715 720
 Ala Asp Gly Arg Gly Ala Gly Glu Cys Asp Arg Asp Arg Lys Val Leu
 725 730 735
 Lys Gly Leu Arg Pro His Pro Asn Leu Arg Glu Leu Ser Ile Lys Tyr
 740 745 750
 Tyr Gly Gly Thr Ser Ser Pro Ser Trp Met Thr Asp Gln Tyr Leu Pro
 755 760 765
 Asn Met Glu Thr Ile Arg Leu Arg Ser Cys Ala Arg Leu Thr Glu Leu
 770 775 780
 Pro Cys Leu Gly Gln Leu His Ile Leu Arg His Leu His Ile Asp Gly
 785 790 795 800
 Met Ser Gln Val Arg Gln Ile Asn Leu Gln Phe Tyr Gly Thr Gly Glu
 805 810 815
 Val Ser Gly Phe Pro Leu Leu Glu Leu Leu Asn Ile Arg Arg Met Pro
 820 825 830
 Ser Leu Glu Glu Trp Ser Glu Pro Arg Arg Asn Cys Cys Tyr Phe Pro
 835 840 845
 Arg Leu His Lys Leu Leu Ile Glu Asp Cys Pro Arg Leu Arg Asn Leu

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850

855

860

Pro Ser Leu Pro Pro Thr Leu Glu Glu Leu Arg Ile Ser Arg Thr Gly
865 870 875 880

Leu Val Asp Leu Pro Gly Phe His Gly Asn Gly Asp Val Thr Thr Asn
885 890 895

Val Ser Leu Ser Ser Leu His Val Ser Glu Cys Arg Glu Leu Arg Ser
900 905 910

Leu Ser Glu Gly Leu Leu Gln His Asn Leu Val Ala Leu Lys Thr Ala
915 920 925

Ala Phe Thr Asp Cys Asp Ser Leu Glu Phe Leu Pro Ala Glu Gly Phe
930 935 940

Arg Thr Ala Ile Ser Leu Glu Ser Leu Ile Met Thr Asn Cys Pro Leu
945 950 955 960

Pro Cys Ser Phe Leu Leu Pro Ser Ser Leu Glu His Leu Lys Leu Gln
965 970 975

Pro Cys Leu Tyr Pro Asn Asn Asn Glu Asp Ser Leu Ser Thr Cys Phe
980 985 990

Glu Asn Leu Thr Ser Leu Ser Phe Leu Asp Ile Lys Asp Cys Pro Asn
995 1000 1005

Leu Ser Ser Phe Pro Pro Gly Pro Leu Cys Gln Leu Ser Ala Leu
1010 1015 1020

Gln His Leu Ser Leu Val Asn Cys Gln Arg Leu Gln Ser Ile Gly
1025 1030 1035

Phe Gln Ala Leu Thr Ser Leu Glu Ser Leu Thr Ile Gln Asn Cys
1040 1045 1050

Pro Arg Leu Thr Met Ser His Ser Leu Val Glu Val Asn Asn Ser
1055 1060 1065

Ser Asp Thr Gly Leu Ala Phe Asn Ile Thr Arg Trp Met Arg Arg
1070 1075 1080

Arg Thr Gly Asp Asp Gly Leu Met Leu Arg His Arg Ala Gln Asn
1085 1090 1095

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Asp Ser Phe Phe Gly Gly Leu Leu Gln His Leu Thr Phe Leu Gln
 1100 1105 1110

 Phe Leu Lys Ile Cys Gln Cys Pro Gln Leu Val Thr Phe Thr Gly
 1115 1120 1125

 Glu Glu Glu Glu Lys Trp Arg Asn Leu Thr Ser Leu Gln Ile Leu
 1130 1135 1140

 His Ile Val Asp Cys Pro Asn Leu Glu Val Leu Pro Ala Asn Leu
 1145 1150 1155

 Gln Ser Leu Cys Ser Leu Ser Thr Leu Tyr Ile Val Arg Cys Pro
 1160 1165 1170

 Arg Ile His Ala Phe Pro Pro Gly Gly Val Ser Met Ser Leu Ala
 1175 1180 1185

 His Leu Val Ile His Glu Cys Pro Gln Leu Cys Gln Arg Cys Asp
 1190 1195 1200

 Pro Pro Gly Gly Asp Asp Trp Pro Leu Ile Ala Asn Val Pro Arg
 1205 1210 1215

 Ile Cys Leu Gly Arg Thr His Pro Cys Arg Cys Ser Thr Thr
 1220 1225 1230